



Network Centric Operations Industry Consortium

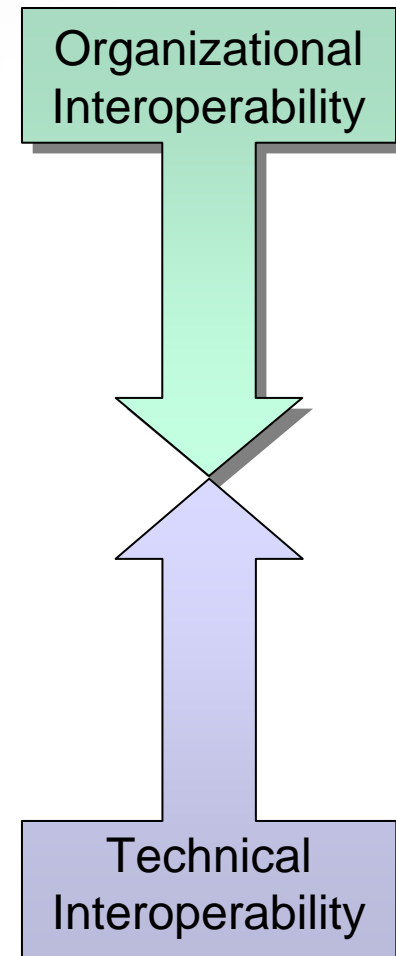
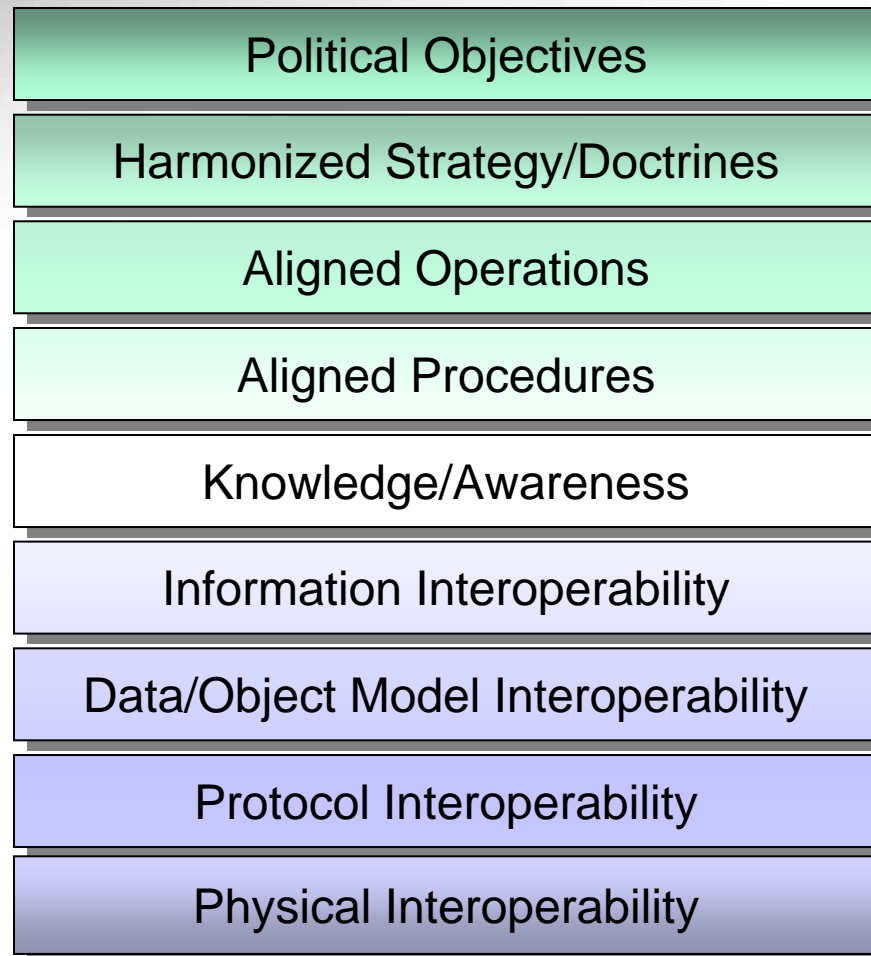
Customer Requirements Team Briefing

November 16, 2005

Will Kramer

An Interoperability Model

Layers of Coalition Interoperability



NCO Transformation

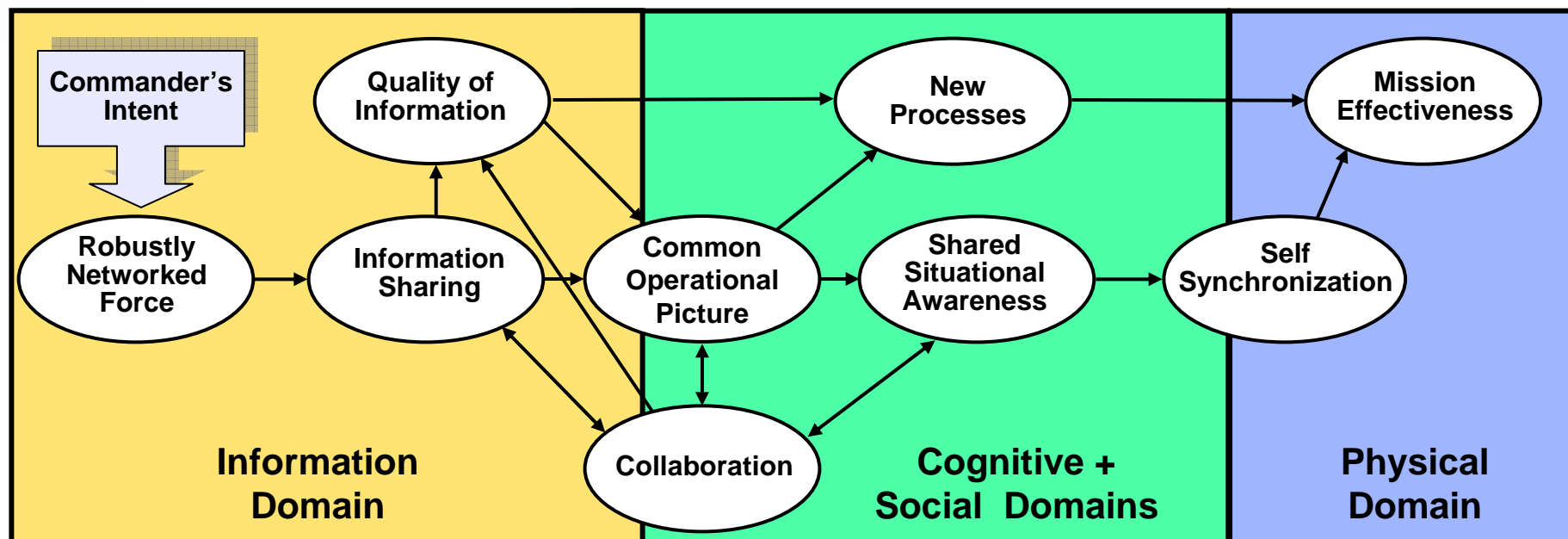
Insights and Challenges

- NCO is a complex transformation requiring new concepts.
 - NCO is a fundamental shift -- like the Internet shifting businesses
 - Stovepipe Systems come from Information Stovepipes
 - NCO involves new ways of organizing, planning, procuring, and fighting
 - Joint, multi-national, multi-company
- NCO currently between “hype” and “early adopter” phases
 - Many NCO initiative and visions
 - A few large programs as pioneers trying to meet evolving requirements
- Standards – necessary, yet not sufficient
 - To build Net-Centric, industry and government must become Net-Centric.
 - Shared information, collaboration, and consensus
 - NCOIC is one way to be involved in doing this
- There is no Godfather of NCO
 - Will be an evolutionary trend in the system design -- not a program. USJFCOM and the new JCIDS process might overcome this

Tenets of Network Centric Operations

...The New Value Chain

- A Robustly Networked Force Improves Information Sharing
- Information Sharing And Collaboration Enhances the Quality of Information and Shared Situational Awareness
- Shared Situational Awareness Enables Collaboration and Self Synchronization and Enhances Sustainability and Speed of Command
- These in Turn Dramatically Increase Mission Effectiveness



Customer Requirements Team

Description

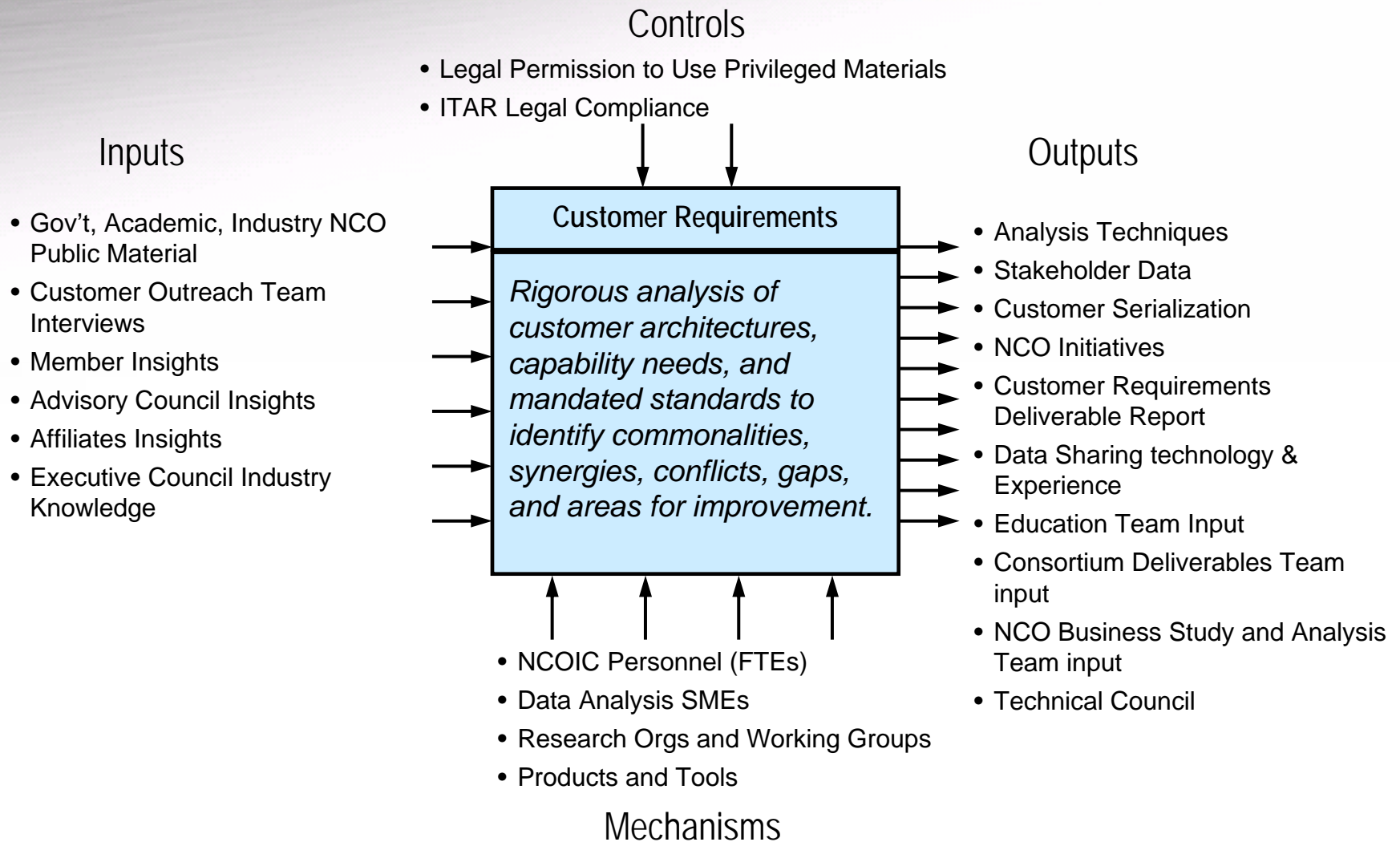
■ Charter

- Rigorous analysis of pertinent government agency architectures, capability needs, and mandated open standards to identify commonalities, synergies, conflicts, gaps and potential areas for improvement. Collection and tracking of key stakeholders and initiatives to identify areas of NCOIC focus.

■ Key Activities

- Evaluate initiatives such as the GIG, NCOW RM, NCES, FORCEnet, C2 Constellation, LANDWARnet, JBMC2, DCGS, NATO NEC, and JC2
- Identify customer and other stakeholder communities of interest (COI)
- Build Knowledgebase of stakeholders, initiatives, architectures, standards, and requirements using DoD Data Sharing concepts
- Create NCOIC infrastructure using member contributed products and expertise as a test-bed for describing, discovering, sharing distributed data
- Analyze mission threads for gaps and improvement opportunities
- Align NCOIC technical efforts with Customer and member initiatives
- Increase member understanding of the Customer missions and needs

Customer Requirements Team



NCOIC 2006 Sample Technical Projects

- IPv6 Communications Issues
- Mobile and Ad hoc Networks Issues (MNO and MNE)
- Chat, Instant Messaging and Collaboration Standards
- Interoperability Patterns and Protocol Functional Collections (PFCs)
- Semantic Web – Taxonomy and Ontology for NCO (SCOPE)
- Network Centric Assessment Tools (NCAT)
- Modeling & Simulation Integration Demonstration
- Customer Requirements Team studies of:
 - Navy FORCEnet
 - USAF C2 Constellation
 - Army FCS & LANDWARnet
 - DCGS Family of Systems
 - JBMC2
 - GIG Architecture and GIG Information Assurance
 - NCOW Reference Model (NCOW RM)
 - Net-Centric Core Enterprise Services (NCES)
 - NATO Network Enabled Computing (NNEC)
 - JC2

Key Government Enablers

- DoD Architecture Framework (DoDAF)
- Core Architecture Data Model (CADM and CADM XML)
- DoD Architecture Repository System (DARS)
- DoD IT Standards Registry (DISRonline)
- Meta-Data Registry (MDR)
- DoD Discovery Meta-Data Services (DDMS)
- Net-Centric Operations & Warfare Reference Model (NCOW RM)
- Net-Ready KPPs
- Net-Centric Checklist
- GIG Key Interface Profiles (KIPs)
- NCO Environment Implementation Process Alignment (NIPA)
- Net-Centric Enterprise Solutions for Interoperability (NESI) Document

Summary

Consortium Efforts Will...

- **Increase interoperability** within and among systems involved in Joint, Interagency and Multinational operations
- **Lower development costs** and increase commonality of design in future systems – tailored standards and best practices
- **Improve force readiness** through more rapid fielding of network centric systems – leverage technical “lessons learned”
- **Reduce systems cost and sustainability** through re-use and commonality – facilitate ease of integration, upgrade, and support
- **Reduce Development Risk** by Identifying the common components needed for the network centric environment – Develop them where none exist
- **Improve Force Effectiveness** through new, more focused development on domain specific capabilities for the Warfighter

Summary (continued)

- We have deeper understanding of NCO Landscape (orgs and initiatives)
 - Customer NCO visions, strategies, functional concepts, architectures, and standards
 - Key Government Enablers and Key Technology Enablers
- We've learned
 - No person or organization has / will have all answers
 - True NCO will “evolve” (be shaped and influenced by small successes then more widely adopted). Will not be architected or procured
 - There will be winners and losers; there will be leaders, followers, and left-behinds.
 - Value out of NCOIC is a function of resources input
 - NCOIC Work Groups are a reflection of their members; voluntary meritocracy; serious engineers beget more serious engineers until critical mass is reached

Key Technology Enablers

- Service Oriented Architectures (SOA)
- Web Services technologies (HTTP, SOAP, XML, WSDL, UDDI)
- Web Development technologies (HTML, Java, J2EE, .NET,
- Semantic Web (World Wide Web Consortium (W3C) OWL & RDF)
- IPv6 Communications
- Mobile and Ad-hoc Networks (MANET) and Mesh Networks
- Grid Computing (distributed computing)
- Storage Virtualization (distributed databases and storage)
- Portals and Federated Portals
- Publish/Subscribe distribution
- Smart Agents
- Smart Filters

Parallels to Commercial IT

World Wide Web (www)	Global Information Grid (GIG)
e-commerce	Network Centric Warfare
e-business	Network Centric Operations
Globalization	Coalition Operations
Virtual Corporations	Compose-able Systems
Virtual Partnerships	Joint and Coalition Operations
Supply Chains	Kill Chains
Supply Chain Management	Sense & Respond Logistics
Time to Market	Time Sensitive Targeting
Plug 'n Play	Plug 'n Fight
Cellular and Wi-Max Networks	Mobile "Edge" Networks
Mesh Networks	Ad Hoc Networks

Rapid Identification and Response to Rapidly Changing Conditions